



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

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December 3, 2012

Mr. Eric Lucier
Wheelabrator Saugus Inc.
100 Salem Turnpike
Saugus, MA 01906

RE: SAUGUS
Transmittal No.: X238955
Application No.: MBR-11-IND-025
FMF No.: 39704
AIR QUALITY PLAN APPROVAL

Dear Mr. Lucier:

The Massachusetts Department of Environmental Protection (“MassDEP”), Bureau of Waste Prevention, has reviewed your Non-major Comprehensive Plan Application (“Application”) listed above. This Application concerns the proposed construction, substantial reconstruction, alteration and/or operation of the ash conveying systems and buildings and enclosures of ash conveying systems (EU3) at your Municipal Waste Combustor (MWC) facility located at 100 Salem Turnpike in Saugus, Massachusetts (“Facility”). The Application bears the seal and signature of Eric A. Pearson, Massachusetts Registered Professional Engineer number 39741.

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 “Air Pollution Control” regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP’s review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator (“Permittee”) must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

Fugitive ash, or particulate matter (PM), emissions from EU3, which are minimal since ash is quenched, transported inside enclosed conveyors and all ash handling conveyors and equipment are located inside enclosed buildings, are ducted by fans to two (2) air pollution control devices (APCDs) that were installed under the retrofit MWC Emission Control Plan (ECP) Final Approval (Application No. MBR-98-ECP-006) issued to the Permittee by MassDEP, in accordance with 310 CMR 7.08, on March 31, 2000, and subsequently modified on September 28, 2007 and March 14, 2012. The APCDs are:

- a wet scrubber (PCD11) located in the fly ash conditioning area; and,
- a wet scrubber (PCD12) located in the ash final load out area.

PCD11 and PCD12 currently exhaust inside the combustor and ash buildings, respectively, after collection of dust (ash) from the air streams directed to them. The Permittee proposes by way of this Application to install two (2) separate stacks for each of these scrubbers in order to direct the exhausts to ambient air outside of the combustor and ash buildings at an elevation of at least ten (10) feet above the highest roof level of the ash building (see Table 7). The Permittee states that venting the wet scrubber exhaust outside the buildings will alleviate problems associated with high humidity levels inside the buildings caused by the wet scrubber exhausts, such as: increased corrosion and maintenance to structural steel, process equipment, and walkways; creation of slippery walkways due to moisture condensation during colder weather; and the need to supplement natural building ventilation to help maintain a safe working environment for employees.

Each scrubber is equipped with a “whirl” chamber where the dust particles are infused with water droplets under high velocity and centrifugal force through a fixed-position dual opposed blade system. Dust particles are driven into the water and the sludge that is formed is collected in the liquid sump below each scrubber prior to being directed to the bottom ash conveyor system. Mist eliminators located downstream of each scrubber remove water droplets in the air streams prior to exhaust. The water level in each scrubber is maintained automatically and make-up water is only necessary to compensate for evaporation and sludge removal.

Selective Non-Catalytic Reduction (SNCR) was one of several APCDs installed for each MWC upstream of EU3 under the retrofit MWC ECP Final Approval referenced above. Any excess unreacted ammonia from the SNCR systems is adsorbed on fly ash which is captured by each MWC’s particulate APCD (fabric filter). Some NH₃ may be desorbed and emitted when the fly ash is directed to EU3.

The proposed modifications to the wet scrubbers may result in potential increases of NH₃ and PM emissions of 2.0 tons and 0.4 tons, respectively, per consecutive twelve (12) month period based on 8760 hours of operation of each scrubber per year. These emissions are based on determining emission rates for the larger scrubber (PCD12) from NH₃ and PM stack testing conducted on September 24, 2010 and scaling emission rates proportionately for the smaller

scrubber (PCD11), since both scrubbers are identical except in fan design air flow capacity. Each wet scrubber is designed to remove an estimated 50 percent of NH₃ emissions and 99 percent of PM emissions.

2. EMISSION UNIT (EU) IDENTIFICATION

The Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1			
EU#	Description	Design Capacity	Pollution Control Device (PCD#)
EU3	Ash Conveying Systems and Buildings and Enclosures of Ash Conveying Systems	5,000 ACFM @ 68 Degrees F	Water Injected Centrifugal Scrubber, Tri-Mer Corp. W-50 Model H (PCD 11)
		8,000 ACFM @ 68 Degrees F	Water Injected Centrifugal Scrubber, Tri-Mer Corp. W-80 Model H (PCD 12)
		NA	Ash Conveyors, Buildings and Enclosures of Ash Conveying Systems

Table 1 Key:

EU# = Emission Unit Number
PCD# = Pollution Control Device Number
ACFM = Actual Cubic Feet per Minute
F = Fahrenheit
NA = Not Applicable

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 below:

Table 2			
EU#	Operational / Production Limit	Air Contaminant	Emission Limit
EU3	1. NA	PM	≤ 0.09 tpm (PCD11 and PCD12) ≤ 0.4 tpy (PCD11 and PCD12)
		NH ₃	≤ 0.5 tpm (PCD11 and PCD12) ≤ 2.0 tpy (PCD11 and PCD12)

Table 2 Key:

EU# = Emission Unit Number
PCD = Pollution Control Device

PM = particulate matter that includes particulate matter having a diameter of 10 microns or less (PM₁₀) and particulate matter having a diameter of 2.5 microns or less (PM_{2.5})

NH₃ = ammonia

tpm = tons per month

tpy = tons per consecutive 12-month period

≤ = less than or equal to

NA = Not Applicable

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3	
EU#	Monitoring and Testing Requirements
EU3	1. The Permittee shall ensure that PCD11 and PCD12 and associated fans are operated at all times (except during periods of malfunction or maintenance) while ash is handled. Visual and audible alarms for scrubber low water level and fan motor amperage draw shall be installed, maintained, and operated for each scrubber at all times in the Facility's control room to alert Facility personnel in the event of low scrubber water level and/or fan failure.
	2. The Permittee shall operate and maintain PCD11 and PCD12 in accordance with the manufacturer's recommendations. The Permittee shall monitor, at minimum, on a continuous basis (except during periods of malfunction or maintenance) each wet scrubber's differential pressure and fan motor amperage draw. Other key operating parameters, such as but not limited to, fan vibration, noise, and bearing temperature, sludge removal, water level, supply, and flow pattern shall be monitored at least once per shift. Facility personnel shall promptly respond to investigate and initiate corrective action as necessary to any scrubber alarm or scrubber malfunction.
	3. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	4. If and when MassDEP requires it, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13 or other methodologies approved by MassDEP.

Table 3 Key:

EU# = Emission Unit Number

PCD = Pollution Control Device

USEPA = United States Environmental Protection Agency

Table 4	
EU#	Record Keeping Requirements
EU3	1. The Permittee shall record, at minimum, fan motor amperage draw, and the results of periodic inspections for key operating parameters, such as but not limited to, fan excessive vibration, noise, and bearing temperature, sludge removal, and water level, supply, and flow pattern for PCD11 and PCD12 at least once per shift. Corrective action to any scrubber alarm or scrubber malfunction shall also be recorded in the control room log book or other written or electronic record keeping system.

Table 4	
EU#	Record Keeping Requirements
EU3	2. The Permittee shall maintain adequate records on-site to demonstrate compliance with all emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve month period (current month plus prior eleven months). These records shall be compiled no later than the 15 th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/dep/air/approvals/aqforms.htm#report .
	3. The Permittee shall maintain records of monitoring and testing of PCD11 and PCD12 as required by Table 3.
	4. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the PCDs approved herein on-site.
	5. The Permittee shall maintain a record of routine maintenance activities performed on the approved PCDs and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	6. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved PCDs and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to normal operation.
	7. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	8. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	9. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:

EU# = Emission Unit Number

PCD = Pollution Control Device

SOMP = Standard Operating and Maintenance Procedure

USEPA = United States Environmental Protection Agency

Table 5	
EU#	Reporting Requirements
EU3	1. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	2. The Permittee shall notify the Northeast Regional Office of MassDEP, BWP Permit Chief by email at nero.air@massmail.state.ma.us , or fax (978) 694-3499, as soon as possible, but no later than one (1) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to the BWP Permit Chief at MassDEP within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	3. The Permittee shall report annually to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require Plan Approval.
	4. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30 days from MassDEP's request.

Table 5	
EU#	Reporting Requirements
EU3	5. The Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.
	6. The Permittee shall submit to MassDEP a final stack emission test results report, within 45 days after emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.

Table 5 Key:
EU# = Emission Unit Number

4. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to, and shall comply with, the following special terms and conditions:

- A. The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU#	Special Terms and Conditions
EU3	1. The Permittee shall incorporate the SOMP for PCD11 and PCD12, as developed per manufacturer's recommendations, into the operating manual utilized for training of MWC operators in accordance with 310 CMR 7.08(2)(f)6. and 40 CFR Part 60, Subpart Eb, 60.54b, as amended.
Facility-wide	2. Any prior Plan Approvals issued under 310 CMR 7.02 shall remain in effect unless specifically changed or superseded by this Plan Approval. The Permittee shall ensure that the Facility shall not exceed the emission limits and shall comply with approved conditions specified in the prior Plan Approval(s) unless specifically altered by this Plan Approval.

Table 6 Key:
EU# = Emission Unit Number
PCD = Pollution Control Device
SOMP = Standard Operating and Maintenance Procedure

- B. The Permittee shall install and use exhaust stacks, as required in Table 7, on PCD11 and PCD12 that are consistent with good air pollution control engineering practice and that discharge so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as "shanty caps" and "egg beaters." The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7 below, for the Emission Unit that is regulated by this Plan Approval:

Table 7				
EU#	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (feet)	Stack Gas Exit Velocity Range (feet per second)	Typical Stack Gas Exit Temperature Range (°F)
EU3 (PCD11)	≥ 98	1.17	75 to 85	60 to 100
EU3 (PCD12)	≥ 98	1.17	140 to 150	60 to 100

Table 7 Key:

EU# = Emission Unit Number

PCD = Pollution Control Device

°F = Degree Fahrenheit

≥ = greater than or equal to

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and/or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.

- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.
- H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.
- I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.
- J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.
- K. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Should you have any questions concerning this Plan Approval, please contact Cosmo Buttaro by telephone at (978) 694-3281, or in writing at the letterhead address.

Sincerely,

This final document copy is being provided to you electronically by the
Department of Environmental Protection. A signed copy of this document
is on file at the DEP office listed on the letterhead.

Cosmo Buttaro
Environmental Engineer

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James E. Belsky
Permit Chief
Bureau of Waste Prevention

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MassDEP/Boston – Yi Tian (E-Copy)
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